CLAIMS

1. A data processing system comprising:

a memory for storing operands;

a plurality of general purpose registers wherein each general purpose register holds multiple data elements; and

processor circuitry for executing one or more instructions, at least one of the one or more instructions for transferring a plurality of data elements between the memory and the at least two of the plurality of general purpose registers wherein the at least one or more instructions specifies a number of register elements to be transferred between each of the at least two of the plurality of general purpose registers and the memory.

2. The data processing system of claim 1 wherein the one or more instructions additionally specifies which of the register elements to load or store in addition to the number of register elements to be transferred.

3. The data processing system of claim 1 wherein when only a subset of the multiple data elements is transferred between each of the at least two of the plurality of general purpose registers and the memory, any unspecified data elements are filled with a predetermined value.

4. The data processing system of claim 3 wherein the predetermined value comprises a zero value having all bits equal to zero.

5. A method of transferring data elements in a data processing system comprising:

storing operands in a memory;

storing multiple data elements in each of a plurality of general purpose registers; and

executing one or more instructions in the data processing system, at least one of the one or more instructions causing a transfer of a plurality of data elements between the memory and the at least two of the plurality of general purpose registers, wherein the at least one or more instructions specifies a number of register elements to be transferred between each of the at least two of the plurality of general purpose registers and the memory.

6. The method of claim 5 further comprising:

specifying with each of the one or more instructions which of the register elements to load or store in addition to the number of register elements to be transferred.

7. The method of claim 5 further comprising:

when only a subset of the multiple data elements is transferred between each of the at least two of the plurality of general

purpose registers and the memory, filling any unspecified data elements with a predetermined value.

8. A data processing system comprising:

a memory for storing operands;

a plurality of general purpose registers wherein each general purpose register holds multiple data elements; and

processor circuitry for executing one or more instructions, at least one of the one or more instructions for transferring a plurality of data elements between the memory and the at least two of the plurality of general purpose registers wherein the at least one or more instructions specifies which data elements of the at least two of the plurality of general purpose registers are to be transferred.

9. The data processing system of claim 8 wherein when only a subset of the multiple data elements is transferred, any unspecified data elements are filled by the processor circuitry with a predetermined value.

10. The data processing system of claim 9 wherein the predetermined value is a zero value.

11. The data processing system of claim 8 wherein the data element specified by the at least one or more instructions are contiguously positioned within the at least two of the plurality of general purpose registers.

12. The data processing system of claim 8 wherein the data element specified by the at least one or more instructions are not contiguously positioned within the at least two of the plurality of general purpose registers.

13. A method of transferring data elements in a data processing system comprising:

storing operands in a memory;

holding multiple data elements in each of a plurality of general purpose registers; and

executing one or more instructions, at least one of the one or more instructions causing a transfer of a plurality of data elements between the memory and at least two of the plurality of general purpose registers wherein the at least one or more instructions specifies which data elements of the at least two of the plurality of general purpose registers are to be transferred.

14. The method of claim 13 further comprising filling any unspecified data elements with a predetermined value when only a subset of the multiple data elements is transferred.

15. A data processing system comprising:

a memory for storing operands;

a plurality of general purpose registers wherein each general purpose register holds multiple data elements; and

processor circuitry for executing one or more instructions, at least one of the one or more instructions for transferring a plurality of data elements between the memory and the at least two of the plurality of general purpose registers wherein the at least one or more instructions specifies both a number of data elements to be transferred between each of the at least two of the plurality of general purpose registers and the memory and further specifies a total number of data elements to be transferred.

16. The data processing system of claim 15 wherein when a total number of data elements to be transferred is greater than a number of data elements to be transferred to each of the at least two of the plurality of general purpose registers, data elements are transferred to a predetermined one of the plurality of general purpose registers.

17. The data processing system of claim 15 wherein when a total number of data elements to be transferred is less than a number of data elements to be transferred to each of the at least two of the plurality of general purpose registers, any remaining specified data elements of the plurality of general purpose registers are filled with a predetermined value.

18. The data processing system of claim 17 wherein the predetermined value is a zero value.

19. The data processing system of claim 15 wherein the one or more instructions specifies by using a field in the instruction to identify the number of data elements to be transferred between each of the at least two of the plurality of general purpose registers and the memory and to identify the total number of data elements to be transferred.

20. The data processing system of claim 15 wherein the one or more instructions specifies by identifying a register within the data processing system that contains information to identify the number of data elements to be transferred between each of the at least two of the plurality of general purpose registers and the memory and to identify the total number of data elements to be transferred.

21. The data processing system of claim 15 wherein the data elements are positioned in contiguous storage locations in the memory.

22. The data processing system of claim 15 wherein the data elements are positioned in non-contiguous storage locations in the memory.